



Common Representation of Battle Space Data via Joint Common Data Base (JCDB) Models & Segments



Common **Representation -** **“Logical to Physical” -** **Both Structure and** **Models - Content** **A Key to** **Interoperability**

That *Unlocks*

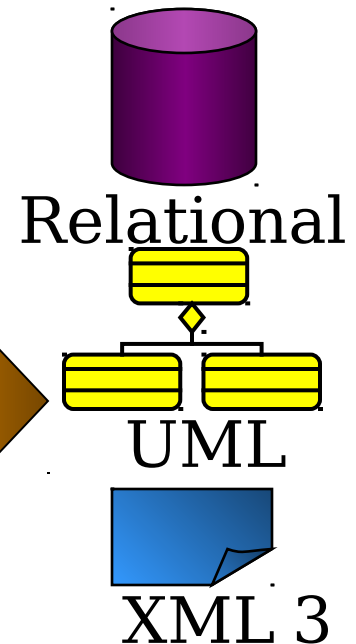
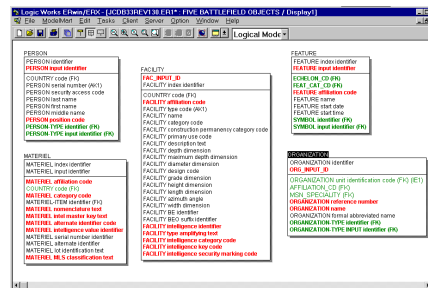
- **Data Management,**
- **Data Mediation, and**
- **Data Exchange Technologies**



What's our Goal? Data Sharing not Data Standards

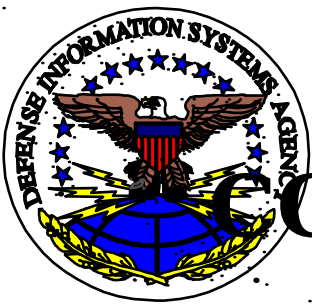
Common Semantics, Multiple Forms

- Focus on what is required to *physically* share data
- Common logical specification, same semantics, incremental 8320 Standards refinement for primary Battlefield Objects:
 - Organization ("Unit" and below)
 - Person (personnel)
 - Material (equipment and consumables)
 - Facility
 - Feature
- Key C2/I and Combat Support developers agree on model
 - Model can morph to multiple data and metadata formats
 - RDBMS
 - Flat File
 - UML
 - XML
 - APIs/Interface Definitions



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Common Representation in ICDB



Proposed Refinements to COE Data Compliance *measures*

Data Interoperability

COE
Compliance
Level

8 (**Enterprise**) Data reconciled with DoD Enterprise Model

7 (**Domain**) Data is consistent within defined & registered community of interest (e.g., Intelligence, Logistics, Finance)

6 (**Functional**) Documentation includes required data model.

5 (**Connected**) Data is stored separately from application(s) and available via published APIs

High

Interoperability

Low

4

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Common Represent
tation in ICDB



JCDB Model Contains Five Primary Battlefield Objects

Logic Works ERwin/ERX - [JCDB33REV130.ER1* : FIVE BATTLEFIELD OBJECTS / Display1]

File ModelMart Edit Tasks Client Server Option Window Help

Logical Mode

PERSON

- PERSON identifier
- PERSON input identifier**
- COUNTRY code (FK)
- PERSON serial number (AK1)
- PERSON security access code
- PERSON last name
- PERSON first name
- PERSON middle name
- PERSON position code**
- PERSON-TYPE identifier (FK)**
- PERSON-TYPE input identifier (FK)**

MATERIEL

- MATERIEL index identifier
- MATERIEL input identifier
- MATERIEL affiliation code**
- COUNTRY code (FK)
- MATERIEL category code**
- MATERIEL-ITEM identifier (FK)
- MATERIEL nomenclature text**
- MATERIEL intel master key text**
- MATERIEL alternate identifier code**
- MATERIEL intelligence value identifier**
- MATERIEL serial number identifier
- MATERIEL alternate identifier
- MATERIEL lot identification text
- MATERIEL MLS classification text**

FACILITY

- FAC_INPUT_ID**
- FACILITY index identifier
- COUNTRY code (FK)
- FACILITY affiliation code**
- FACILITY type code (AK1)
- FACILITY name
- FACILITY category code
- FACILITY construction permanency category code
- FACILITY primary use code
- FACILITY description text
- FACILITY depth dimension
- FACILITY maximum depth dimension
- FACILITY diameter dimension
- FACILITY design code
- FACILITY grade dimension
- FACILITY height dimension
- FACILITY length dimension
- FACILITY azimuth angle
- FACILITY width dimension
- FACILITY BE identifier
- FACILITY BEO suffix identifier
- FACILITY intelligence identifier**
- FACILITY type amplifying text**
- FACILITY intelligence category code**
- FACILITY intelligence key code**
- FACILITY intelligence security marking code**

FEATURE

- FEATURE index identifier
- FEATURE input identifier**
- ECHELON_CD (FK)**
- FEAT_CAT_CD (FK)**
- FEATURE affiliation code**
- FEATURE name
- FEATURE start date
- FEATURE start time
- SYMBOL identifier (FK)**
- SYMBOL input identifier (FK)**

ORGANIZATION

- ORGANIZATION identifier
- ORG_INPUT_ID**
- ORGANIZATION unit identification code (FK) (IE1)
- AFFILIATION_CD (FK)**
- MSN_SPECIALITY (FK)**
- ORGANIZATION reference number**
- ORGANIZATION name**
- ORGANIZATION formal abbreviated name
- ORGANIZATION-TYPE identifier (FK)**
- ORGANIZATION-TYPE INPUT identifier (FK)**

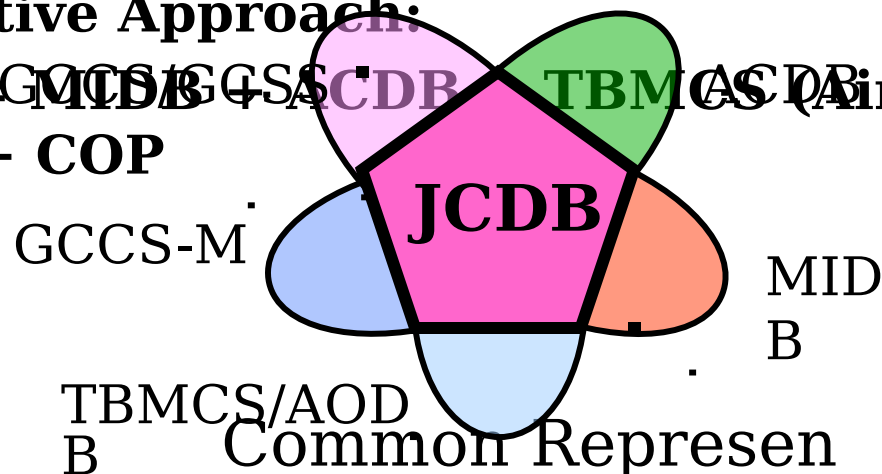


JCDB - A Baseline Relational Instance of a Common Representation

- **Practical physical implementation with key Development Team buy-in**
 - Broad potential for Re-use in DB Segment form
- **Arena to Resolve COE-Data Standardization Guidance Disconnect**
 - Candidate Level 8 Database Segment
 - Reasonable relationship between Data Standards and COE compliance

- **Collaborative Approach:**

JCDB v1 = GCCS-M + COP





JCDB Coordination History

DATE

EVENT(S)

22 Apr
resolution
mid-May
Data Standards,

JIIB requests COE/SHADE explore MIDB-ACDB

COE/SHADE team coordination with CFS

29 May
meeting

DIA and Army ASAS management/data engineers
CFS Data Standards hosts initial DISA-Army-DIA

Early Jun

- technical approach agreed
- data engineering resources committed
- Army-DIA technical coordination begins
- focus on major battlefield objects
- organization ("units") first priority

17 Jul

2nd CFS-hosted DISA-Army-DIA status meeting

- decision to expand technical

coordination

17 Sep

Navy hosts technical exchange meeting

- major C2I systems data team reps agree

on approach
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Early Nov
partners

Common Representa
Latest JCDB version distributed to C2I
tation in JCDB



JCDB Coordination History (continuing)

DATE

EVENT(S)

12 Nov
and USMC

3rd CFS hosted meeting
- includes DISA-Army-DIA-Navy-USAF
- JCDB effort endorsed; Army to explore

EA role
5 Jan
mid-Jan
issues

AF interoperability experiment
CFS hosted meeting to address sponsorship/CM

12-13 Jan
visits Ft. Monmouth

COE JCDB Segmentation assist team

20 Feb
23 Feb
decomposition

Initial JCDB Segment available
Initial analysis meeting for Segment

- Based on Primary Battlefield Objects
- Dependencies for Modular

Implementation

25 Feb

Update JOPES 2000 Schema

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- use of tables from JCDB Segment
Common Representation
cross-reference links to OPLAN data

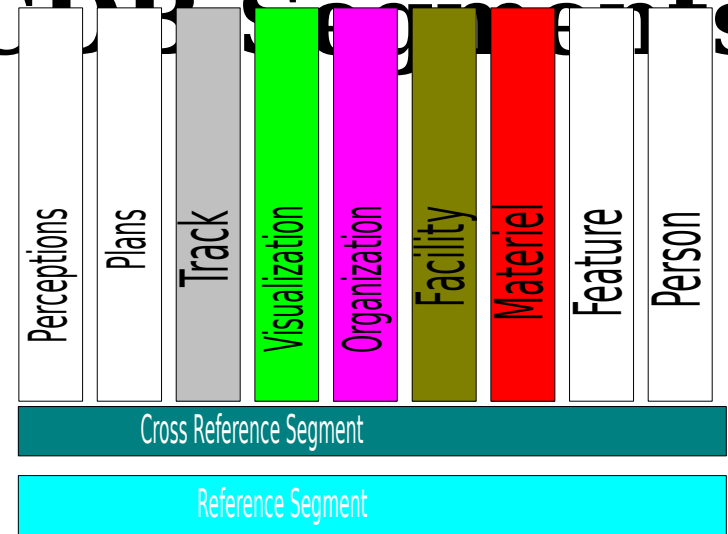
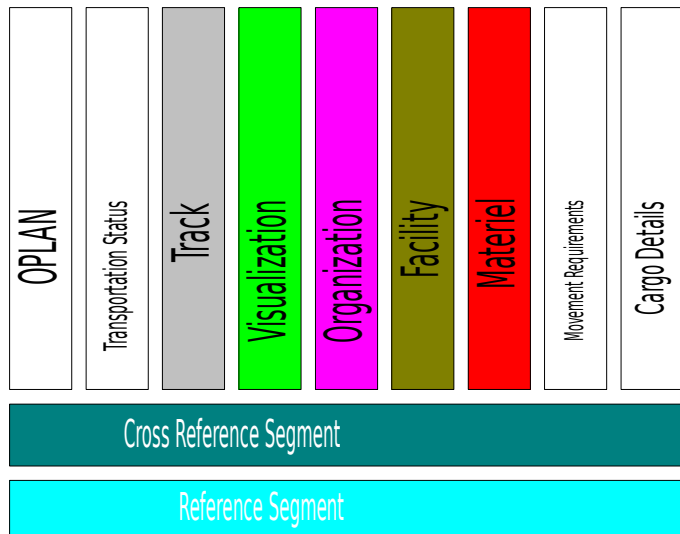
15 Mar

DISA Initiator Standards Update Package



Potential Relationship Between JOPES 2000 and

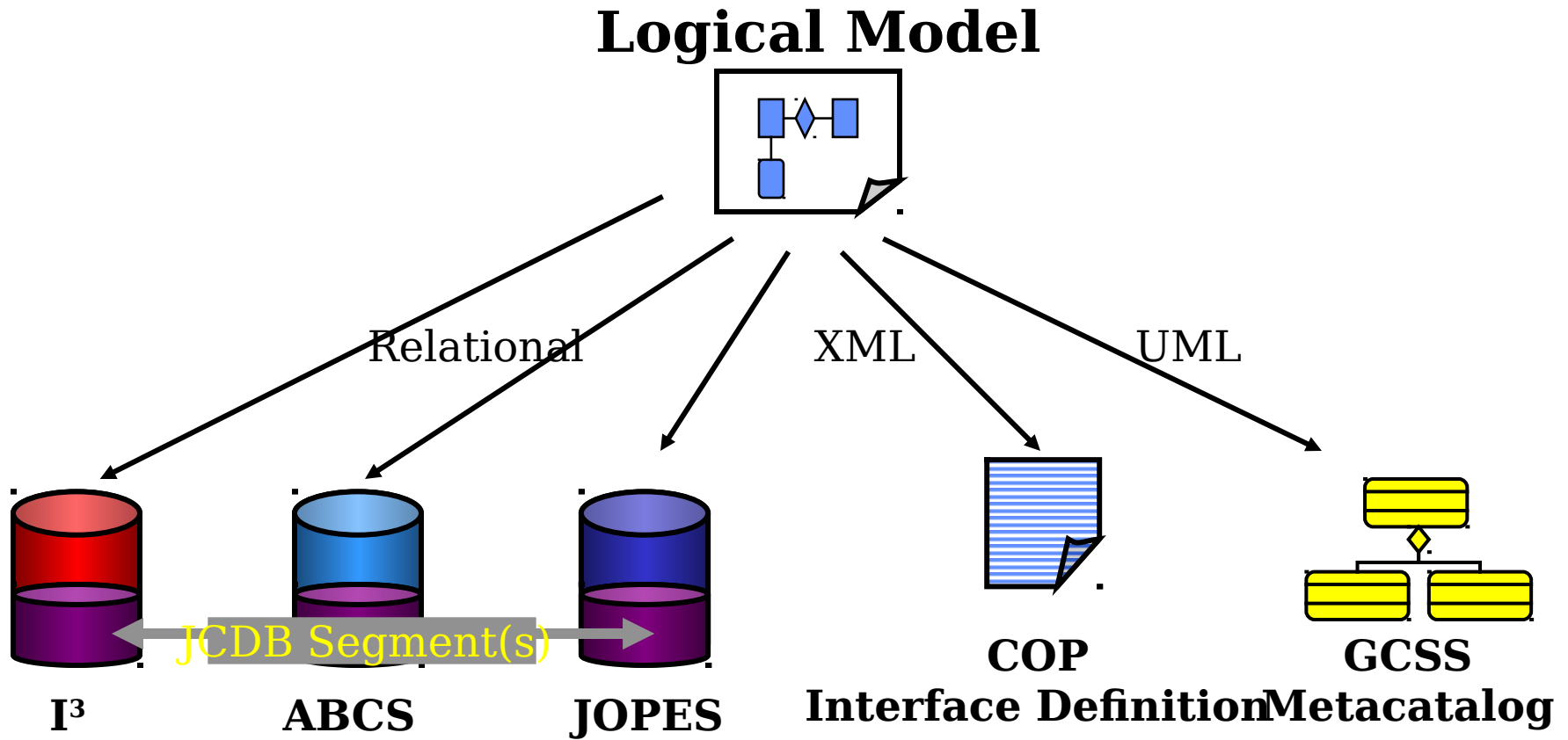
JOPES Segments



- **Single segment for static reference tables**
- **Cross reference segment for dependencies and links**
- **Dynamic segments for relevant objects**



Improved Data Sharing via Model Management



Common Logical Representation can spawn physical schema for multiple COE-based system requirements

ation in JADB



Questions?



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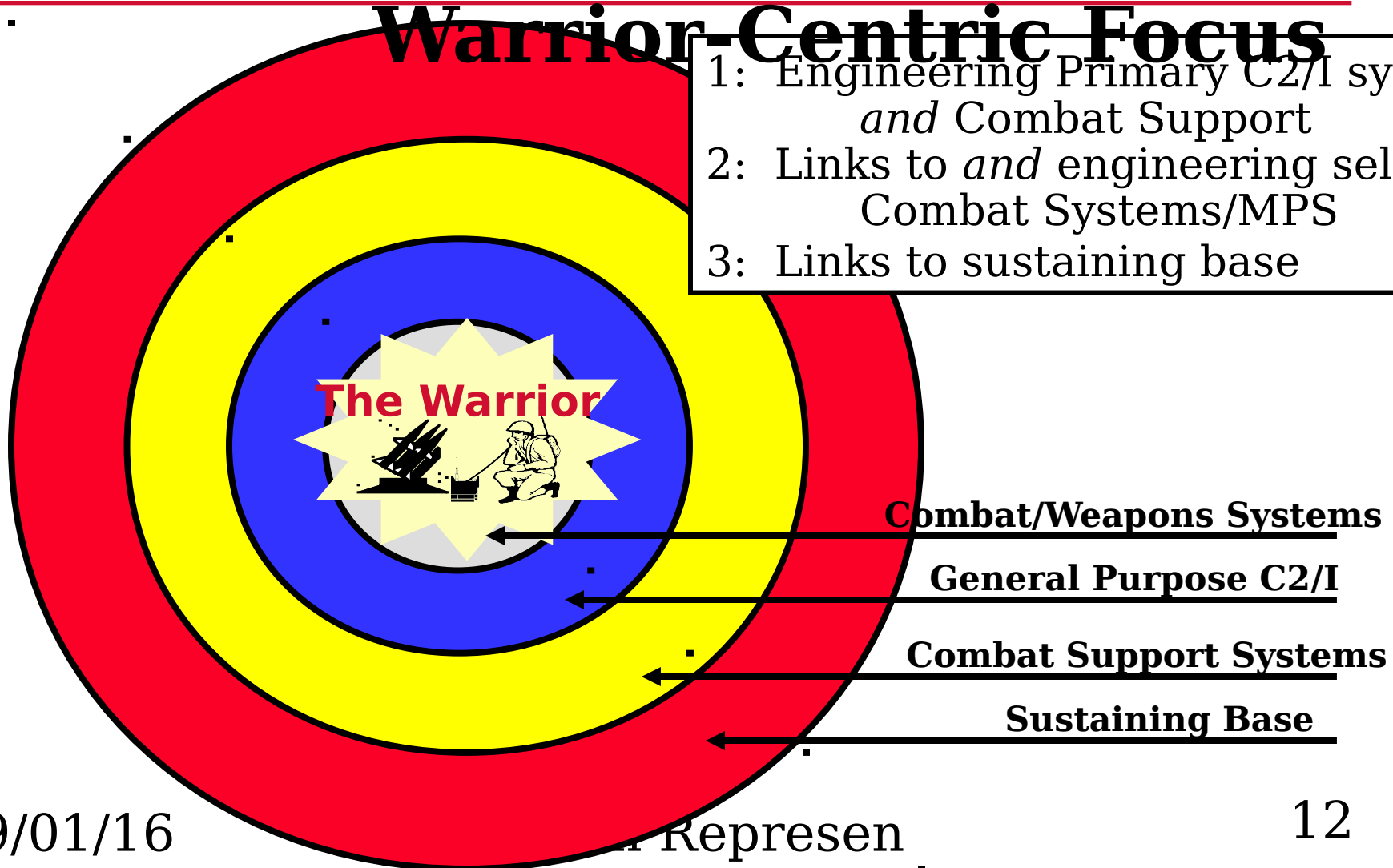
Common Representation in ICDB



Common Representation uses:

Warrior-Centric Focus

- 1: Engineering Primary C2/I systems *and* Combat Support
- 2: Links to *and* engineering selected Combat Systems/MPS
- 3: Links to sustaining base

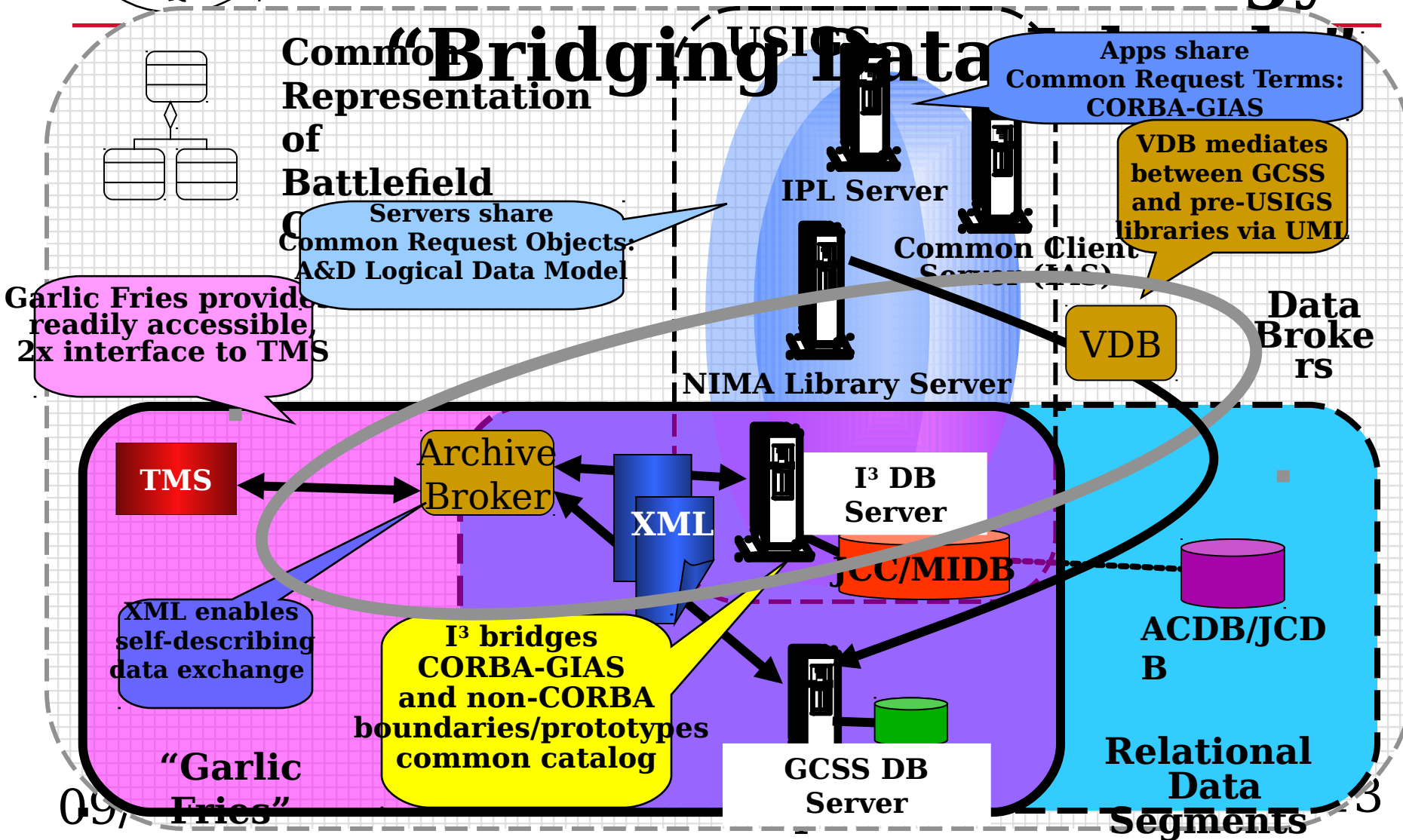


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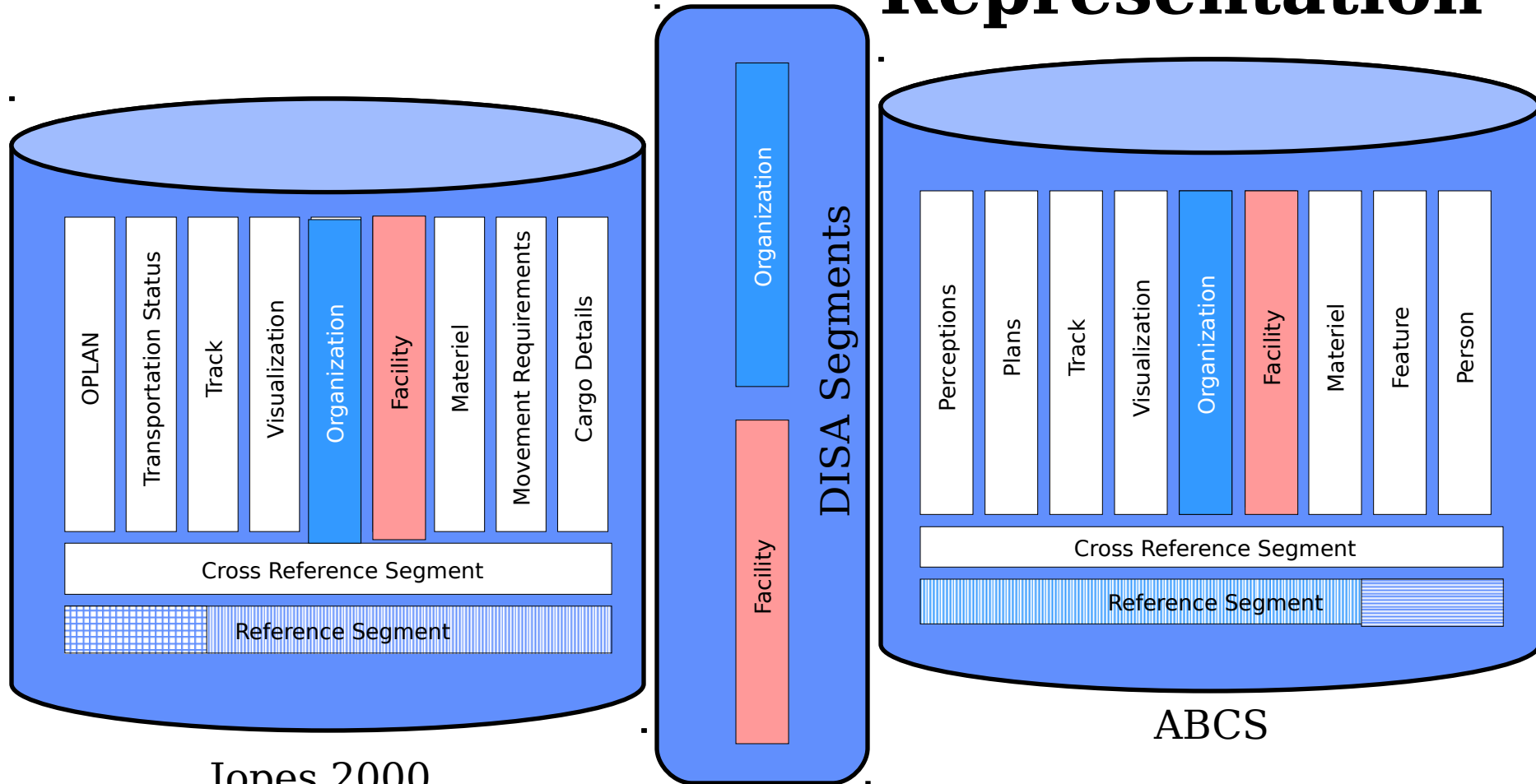


Data Engineering Strategy





Use of JCDB Segment to create Common Representation



Jopes 2000
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tation in JCDB